

REMARKS

Claims 14, 18 and 21 are pending. By this Amendment, Claims 28-30 are added.

Reconsideration of the March 31, 2003, Official Action is respectfully requested.

Initially, the Official Action asserts that "the changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e))" (emphasis added). However, this assertion is incorrect because the present Rule 53(b) Divisional Application was filed on February 15, 2002.

Claim 14 was rejected under 35 U.S.C. § 102(e) over U.S. Patent No. 6,004,884 to Abraham. The reasons for the rejection are stated at numbered paragraph 2 of the Official Action. The rejection is respectfully traversed for the following reasons.

Claim 14 was amended by the Amendment After Final Rejection filed on February 24, 2003, to recite "an oxygen-free plasma etching gas formulation for removing an organic ARC on a metallic layer comprising CHF₃, argon and HCl or BC_l₃, the gas formulation being free of SF₆" (emphasis added). Abraham does not disclose the combination of features recited in Claim 14.

The Official Action asserts that "Abraham shows an example of a first chemistry Cl₂/Ar/CHF₃ etch of a wafer in a plasma reactor (column 10, lines 33-36) which reads on, an oxygen-free plasma etching gas formulation comprising one or more fluorine-containing compounds, an optional inert carrier gas and chlorine, the gas formulation being free of

SE₆" (emphasis added). However, this particular oxygen-free plasma etching gas formulation is not the gas formulation presently recited in Claim 14; rather, this was the gas formulation recited in Claim 14 prior to the February 24, 2003, Amendment After Final Rejection. Accordingly, the present Official Action does not compare the subject matter that is actually claimed in Claim 14 to Abraham.

Moreover, as explained in the February 24, 2003, Amendment After Final Rejection, when a proper comparison is made between the subject matter recited in Claim 14 and Abraham, it is readily seen that Abraham does not disclose a gas formulation that comprises each of CHF₃, argon and HCl or BCl₃, as recited in Claim 14.

Accordingly, because Abraham fails to disclose the combination of features recited in Claim 14, Claim 14 is patentable over Abraham. Therefore, withdrawal of the rejection of Claim 14 is respectfully requested.

Claim 18 was rejected under 35 U.S.C. § 103(a) over Abraham in view of U.S. Patent No. 4,208,241 to Harshbarger et al. ("Harshbarger"). The reasons for the rejection are stated at numbered paragraph 4 of the Official Action. The rejection is respectfully traversed for the following reasons.

The present application is entitled to the benefit of the filing date of the parent application, Application No. 09/002,007, which was filed on December 31, 1997 (now U.S. Patent No. 6,391,786). The present application also is assigned to Lam Research Corporation ("Lam"). See the Assignment recorded at reel/frame: 9228/0642 in the U.S.P.T.O.

Abraham also is assigned to Lam. See the Assignment recorded at reel/frame: 7924/0815 in the U.S.P.T.O.

Thus, according to 35 U.S.C. § 103(c), and as explained at MPEP § 706.02(k)¹, because (1) the present application was filed after November 29, 1999, and (2) the present application and Abraham are commonly assigned to Lam, Abraham is disqualified as prior art under 35 U.S.C. § 102(e) against the present application. Therefore, the rejection of Claim 18 should be withdrawn.

Claim 21 was rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 5,498,768 to Nishitani et al. ("Nishitani"). The reasons for the rejection are stated at numbered paragraph 6 of the Official Action. The rejection is respectfully traversed for the following reasons.

Claim 21 recites an oxygen-free plasma etching gas formulation for removing an organic ARC on a metallic layer, which "comprises more than one fluorine-containing compound, an optional inert carrier gas, and chlorine, the gas formulation being free of SF₆" (emphasis added). The recited gas formulation is not disclosed or suggested by Nishitani for the following reasons.

The Official Action asserts that Nishitani discloses a "plasma treatment using halogen-containing chemical etching gases . . . such as Cl₂, BCl₃, . . . NF₃, CF₄,

¹ The MPEP states, "Effective November 29, 1999, subject matter which was prior art under former 35 U.S.C. 103 via 35 U.S.C. 102(e) is now disqualified as prior art against the claimed invention if that subject matter and the claimed invention 'were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.' This change to 35 U.S.C. 103(c) applies to all utility . . . applications filed on or after November 29, 1999, including continuing applications filed under 37 CFR 1.53(b)" (Emphasis added).

CHF₃, SF₆ and SiF₄ each alone or as a mixture thereof with inert gases such as Ar (column 5, lines 24-32)", and further asserts that "since Nishitani etching gases may be used alone or as a mixture with inert gases, then Nishitani gases reads on . . . [the subject matter recited in Claim 21]" (emphasis added). Applicants respectfully disagree with these assertions.

Particularly, Nishitani does not disclose that mixtures of the halogen-containing gases may be used together. Rather, Nishitani discloses "using halogen-containing chemical etching gases . . . each alone or as a mixture thereof with inert gases such as Ar". That is, Nishitani discloses that (1) the halogen-containing gases may be used alone (i.e., as a single halogen-containing gas used without inert gas), or (2) that the halogen-containing gases can be mixed individually with inert gases such as argon (i.e., as a mixture of one halogen-containing gas with inert gas). Nishitani does not disclose mixing more than one halogen-containing gas with inert gas (i.e., a mixture of more than one halogen-containing gas and inert gas). For example, at column 8, lines 9-14, Nishitani discloses incorporating a small amount of NF₃, Cl₂ or BCl₃ with argon, i.e., mixing only one of these three gases with argon. Moreover, Nishitani does not provide an example that uses more than one halogen-containing gas with inert gases.

Accordingly, because Nishitani does not disclose the combination of features recited in Claim 21, Claim 21 is patentable over Nishitani. Withdrawal of the rejection is respectfully requested.

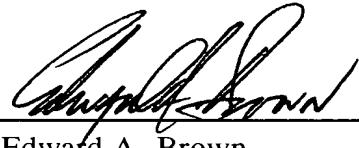
New Claims 28 and 29 depend from Claim 14 and, thus, are also patentable over Nishitani for at least the same reasons as those for Claim 14.

New Claim 30 depends from Claim 21 and, thus, is also patentable over Nishitani for at least the same reasons as those for Claim 21.

For the foregoing reasons, it is submitted that the application is in condition for allowance and such action is earnestly solicited.

Respectfully submitted,

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